

UTAH PLANT NOVELTIES IN *CYMOPTERUS* AND *PENSTEMON*

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ABSTRACT.— *Cymopterus higginsii* and *Penstemon atwoodii* are named and described from materials collected in the Kaiparowits Plateau vicinity of eastern Kane County, Utah. Habitat, distribution, and probable affinities are outlined.

Examination of specimens obtained from the Kaiparowits Plateau region of eastern Garfield and Kane counties in southern Utah has revealed the existence of two previously undescribed entities, one each in *Cymopterus* (Apiaceae) and *Penstemon* (Scrophulariaceae). Existence of these taxa is not surprising when one considers the historic remoteness of much of that great region. The discovery and the extent of the range of each taxon must be credited to the extensive fieldwork allowed under the baseline studies of the Navajo-Kaiparowits environmental project directed by personnel from Brigham Young University (Welsh, Murdock, and Wood 1975).

The *Cymopterus* species is known from saline soils of the Tropic Shale formation and associated pedimental gravels on fans and bajadas below the Straight Cliffs formation in that portion of Kane County from the Paria River eastward to the Last Chance Creek vicinity. Apparent relationships of *C. higginsii* seem to lie with *C. fendleri* from which it differs inter alia in the rose to purple flowers with evident pedicels and wider wings on the fruit. The pseudoscape is poorly developed.

The corollas in the *Penstemon* species are glandular hairy externally, and the taxon seems to belong with those species treated by Pennell (1920) as Section *Cristati* and by Keck (1938) illegitimately as Section *Aurator*. The nearest ally appears to be *P. jamesii* from which *P. atwoodii* differs as noted in the diagnosis. *P. atwoodii* is known only from middle elevations of the Kaiparowits region, where it grows on the Cretaceous formations in juniper-pinyon woodland.

Both species, the *Cymopterus* and the *Penstemon*, are plants of very restricted range. They are in areas which are now subject to commercial exploitation, and

both should be considered as threatened species.

Cymopterus higginsii Welsh sp. nov.

Plantae acaulescentes non caespitosae pseudoscapis non vel non nisi evolutis infermis, pubescentes parse pili complanti: folia ovata vel subelliptica in circumscriptem, laminis 1.8-7.7 cm longis 1.5-6.0 cm latis bi- vel tripinnatis viridibus foliolosis longior quam latis pinnatis ad bipinnata, lobi obtusi ad rotundatos vel acutos raro, petiolis 1.8-14 cm longis; pedunculi folia longior ad extremum 2-12 cm longi, purpurascens; involucrem vaginans margine scariosa; involucellum bracteolarum brevior quam floras, lobis aliquot dentatis acutis vel acuminatis; umbellae compactae, radiis 3-5, 1-10 mm longis, umbellula centrali sessili; pedicelli 1-6 mm longi; flores rosei ad purpurascens; fructus ovalis ad ellipticum 7-10 mm longus 5-8 mm latus, alis corpus subaequalis incrassatis spongiosis.

C. fendleri affinis sed floribus roseis ad purpurascens pedicellis evidentibus et alis corpus subaequalis.

HABITAT AND DISTRIBUTION.— Tropic shale and pedimental covering derived from Straight Cliffs and other formations, on saline soils, from East Clark Bench eastward to Last Chance Canyon, at least 30 miles east of Glen Canyon City, eastern Kane County, Utah.

Type: Utah: Kane Co., Shadscale dominated bajada, on gravelly pedimental fan, east of None Butte, ca 17 miles east of Glen Canyon City, S. L. Welsh 12740, 31 May 1975 (Holotype BRY; Isotypes to be distributed). Paratypes: Utah: Kane Co., Site 9, Navajo-Kaiparowits Project, base of Smoky Mt., 2 miles from Ahlstrom Point junction, *Atriplex-Kochia*-

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Artemisia community, N. D. Atwood 3439, March 1972 (BRY); ca 2 miles north of Church Wells, on bench between Coyote Creek and Wahweap Creek, N. D. Atwood et al. 3493, 23 March 1972 (BRY); ca 30 miles east of Glen Canyon City, on Tropic Shale formation, N. D. Atwood 4549, 23 April 1973 (BRY).

The species is named to honor Larry Charles Higgins, student of Boraginaceae, especially of *Cryptantha*, and specialist in western botany generally.

Penstemon atwoodii Welsh sp. nov.

Herbae perennes 1.4-5.3 cm altae; caules pauci vel multi e caudicibus ramificantibus glabri infra medium pilis patulis glanduliferis super; folia glabra, basalia oblanceolata ad spatulata vel ovata ad elliptica raro integra 2.8-9.0 cm longa (0.2) 0.4-0.8 (1.4) cm lata, caulina lanceolinarum ad oblonga vel spatulata, \pm auriculata super integra vel serrata remota raro, 3.0-7.0 cm longa 0.3-0.8 (1.4) cm lata; inflorescentia verticillastorum distinctarum plurium; bractea foliaceae; calyces 6.5-8.5 mm longi lobis lanceolatis herbaceis purpureis pilis glanduliferis; corollae pilis glanduliferis externis cyanae vel cyano-caesiae 13-16 mm longae expansae distales 5-6 mm latae glabrae intus praeter ad orificium labium inferum; antherarum thecae glabrae divaricatae vel explanatae; staminodium barbaturum pilis luteo lineare; capsulae glabrae.

P. jamesii sensu lato affinis sed floribus parvioribus et glabris intus praeter ad orificium labium inferum.

HABITAT AND DISTRIBUTION.— Kaiparowits, Wahweap, and Straight Cliffs for-

mation at 6,200 to 8,000 feet elevation in pinyon-juniper woodland on the Kaiparowits Plateau of eastern Garfield and Kane counties, Utah.

Type: Utah: Kane Co., Gray sand of Kaiparowits formation, pinyon-juniper community, south end of Horse Mountain, ca 10 miles south-southeast of Canaan Peak, S. L. & S. L. Welsh 12820, 14 June 1975 (Holotype; BRY; Isotypes to be distributed).

Paratypes: Utah: Garfield Co., Death Ridge ca 16 miles southwest of Escalante, N. D. Atwood 5177, 30 May 1973; do S. L. Welsh & J. R. Murdock 12866, 28 June 1975. Kane Co., 4 miles southeast of summit of Collets Wash, Kaiparowits Plateau, N. D. Atwood s. n., 19 June 1969; Pinyon-juniper woods on basal Wahweap formation, ca 6 miles north of junction of Escalante road with head of Last Chance Creek, Kaiparowits Plateau, S. L. Welsh & J. R. Murdock 12793, 4 June 1975; do S. L. Welsh & J. R. Murdock 12973a, 4 June 1975.

This species is named to honor Nephi Duane Atwood, student of Hydrophyllaceae, field botanist extraordinary, and first to recognize the unique nature of this taxon.

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